

DISC TYPE WHEEL

5 BACKGROUND OF THE INVENTION

This invention resides in an improved disc type wheel with springing action as it rotates on a surface. It has three marketable features. First it looks like a wheel that will rotate with or without a tire and has flexibility. Second it is easily formed from
10 strong low cost material. Third it has a function with no tire requiring air and becoming flat. This wheel may have a strip of rubber like material attached to the outer diameter surface. Also, this wheel has a low rotating inertia for starting and stopping, which will save fuel and brakes. This wheel is basic a disc made from a flat
15 sheet having the rim area formed with many support beams which flex when coming in contact with a surface. Other forms and material may be used.

DISCRIPTION OF THE PRIOR ART

The first wheel was probably a circular wooden object. The
20 wooden disc got spokes and a wear resistant rim. The contour of the rim changed for different usages, like rolling on a rail or supporting a tire. One of the early tires to provide a softer ride was solid ring shape with many holes parallel to the outer diameter.

References Cited

25 U.S. Patent 5,415,463 May 16, 1995 Olson & Jones ----- 301/64

SUMMARY OF THE INVENTION

The present invention resides in an improved wheel formed from a flat sheet with many extending beams to flex and form the surface for the outer diameter. The outer surface may be covered with a tire.
30 Two sheets and other materials may be used.

BRIEF DESCRIPTION OF DRAWINGS

Fig. 1 is a cross-sectional drawing through one beam of a disc type wheel with beams projecting from alternate sides.

Fig. 2 is a cross-sectional drawing through one beam of a disc type wheel with beams projecting from one side.

Fig. 3 is a cross-sectional drawing through one beam of a disc type wheel with a dimple.

Fig. 4 is a cross-sectional drawing through a disc type wheel made from two disc.

Fig. 5 is a cross-sectional drawing through one curved beam of a disc type wheel.

Fig. 6 is a cross-sectional drawing through one beam of a disc type wheel with a tire on the outer diameter.

DETAIL DESCRIPTION OF THE INVENTION

This invention resides in a disc type wheel with many beams extending radial from a disc in a non radial maner to an outer diameter to permit springing action to smooth out a rolling motion. Time, cost and quantity enter and determine the method of manufacture. Progressive dies take a long time to make and the cost is high. Also, for the size of wheels now in use, the press force would be to large. Shear strength of spring steel (tempered) is 200,000 psi.

$$PT = \frac{LC \times T \times S}{2000}$$

PT = Blanking pressure in tons

LC = Length of cut in inches

T = Thickness in inches

T = Thickness in inches

S = Shear strength in psi.

A low cost circle shear will cut a circle for thin material.

An abrasive saw will cut material at a good rate but is dirty. Torch cutting will cut any thickness of material. The wheels maybe made from flat or rolled stock. The rolled stock will require a straighten roll. Before cutting the outer circle, center holes may be made. Then rotating and indexing is easy. Coming in from the outer diameter " V "s or " Y "s are cut before bending. There are many patterns of bends possible.

Projections can be made for off road or ice and other variations for traction, spring and rigidity. The disc wheels have low rotation inertia for starting and stopping and could save gasoline. A low wind resistant light wheel could be made for bicycles from 24 TS aluminum.

5 A rubber like material may be attached to the outer diameter in a groove, holes and bonding. The rubber like band material will distribute the load to adjacent beams. The flat surface of the disc may have straight or circular dimples to increase the strength. There are many ways to manufacture disc type wheels. From a bowl and slit the outer
10 portion creating beams. Bend beams with bars having slits in the end and projections to limit the amount of bend. An indexing sheet mounted between a punch and die. First bend the beams of the disc in a manner requiring a second operation to form the outer diameter. Dimpling a flat sheet metal surface is easily accomplished by striking with any
15 projecting dimple shaped tool against the flat metal surface backed by a rubber like sheet. The disc surface may not be flat but curved and may be plastic.

Fig. 1 is a cross-sectional drawing through one beam of a disc type wheel with beams projecting from alternate sides. Cross-section
20 is through beam 1 with beam in view.

Fig. 2 is a cross-sectional drawing through one beam of a disc type wheel with all beams projecting from one side with 3 the outer diameter surface.

Fig. 3 is a cross-sectional drawing through one beam of a disc
25 type wheel with 4 a dimple.

Fig. 4 is a cross-sectional drawing through a disc type wheel made from two discs 5 and 6.

Fig. 5 is a cross-sectional drawing through one curved beamed 7 of a disc type wheel.

30 Fig. 6 is a cross-sectional drawing through one beam of a disc type wheel with a tire 8 on the outer diameter.